

WHAT IS CLAIMED IS:

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1. An electrode contact section incorporated in a semiconductor device, comprising:

5 a first-conductivity-type semiconductor substrate;

10 a second-conductivity-type impurity layer formed in one surface of the semiconductor substrate and having a thickness of not more than 1.0 μm from a surface of the semiconductor substrate;

15 a second-conductivity-type contact layer formed in the impurity layer and having a thickness of not more than 0.2 μm from the surface of the semiconductor substrate, the contact layer being thinner than the impurity layer and having a higher impurity concentration than the impurity layer; and

20 a first electrode formed on the contact layer.

2. The electrode contact section according to claim 1, wherein the impurity layer is provided for carrier injection from the impurity layer to the semiconductor substrate, and the contact layer is provided for reducing a contact resistance between the first electrode and the impurity layer and not for carrier injection.

25 3. The electrode contact section according to claim 1, further comprising a second electrode formed at another surface ~~side~~ of the semiconductor substrate for allowing a current to flow between the first and second electrodes.

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4. The electrode contact section according to
claim 3, wherein the semiconductor device is an IGBT.
5. The electrode contact section according to
claim 1, wherein the impurity layer is formed in the
entire one surface of the semiconductor substrate.
6. The electrode contact section according to
claim 1, wherein the impurity layer is formed in a
portion of the one surface of the semiconductor
substrate.
- 10 7. An electrode contact section incorporated in a
semiconductor device, comprising:
 - a first-conductivity-type semiconductor substrate;
 - a second-conductivity-type impurity layer formed
in one surface of the semiconductor substrate;
 - 15 a second-conductivity-type contact layer formed in
the impurity layer, being thinner than the impurity
layer and having a higher impurity concentration than
the impurity layer;
 - a first electrode formed on the contact layer; and
 - 20 a silicide layer formed between the first
electrode and the contact layer, the silicide layer
having a contact-layer-side end thereof made to
substantially correspond to that portion of the contact
layer, at which a concentration profile of the contact
layer assumes a peak value.
 - 25 8. The electrode contact section according to
claim 7, wherein the impurity layer is provided for

carrier injection from the impurity layer to the semiconductor substrate, and the contact layer is provided for reducing a contact resistance between the first electrode and the impurity layer and not for carrier injection.

9. The electrode contact section according to
claim 7, further comprising a second electrode formed
at another surface ~~side~~ of the semiconductor substrate
for allowing a current to flow between the first and
second electrodes.

Claim 7 10. The electrode contact section according to claim 9, wherein the semiconductor device is an IGBT.

11. The electrode contact section according to
claim 7, wherein the impurity layer has a thickness of
not more than 1.0 μm from a surface of the
semiconductor substrate.

12. The electrode contact section according to
claim 7, wherein the contact layer has a thickness of
not more than 0.2 μm from a surface of the
semiconductor substrate.

13. The electrode contact section according to
claim 7, wherein the silicide layer has a thickness of
not more than $0.2 \mu\text{m}$ from a surface of the
semiconductor substrate, and is thinner than the
contact layer.

14. The electrode contact section according to
claim 7, wherein the impurity layer is formed in the

~~entire one surface of the semiconductor substrate.~~

15. The electrode contact section according to
claim 7, wherein the impurity layer is formed in a
portion of the one surface of the semiconductor
substrate.

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